

engages said dryer cylinders; and

means for applying moisture to the asymmetrically dried paper web for relaxing said stresses to thereby control curling of the web.--

--38. (AMENDED) The paper machine of claim [35] 34, wherein said guide rolls are suction cylinders.--

--39. (AMENDED) The paper machine of claim 34, wherein said stresses in [said fiber mesh of] the paper web are formed [or likely to be formed] at a solids content of at least about 70%.--

### **REMARKS**

The Office Action of April 20, 1998 has been reviewed and carefully considered.

The specification is objected to under 37 C.F.R. §1.71.

Claims 1-41 stand rejected under 35 U.S.C. §112, second paragraph.

Claims 26-41 stand rejected under 35 U.S.C. §112, first paragraph.

Claims 26, 28, 30, 31, 33, 34, 37, 38, 40 and 41 stand rejected under 35 U.S.C.

§102(b).

Claims 26-31, 33-38 and 40-41 stand rejected under 35 U.S.C. §103(a).

Claims 27 and 35 have been canceled herein.

Claims 1, 6, 18, 24-26, 28, 31-34, 38 and 39 have been amended.

Claims 1-26, 28-34, and 36-41 are now pending.

Reconsideration of the above-identified application, as herein amended, is respectfully requested.

Applicant has amended claims 1, 6, 18, 24-26, 31-32, 34, and 39 to more particularly point out and claim the subject matter which the Applicant considers as his invention. Specifically, the phrase "or that tend to be formed" has been deleted from original patent claims 1, 6, 18, and 24.

The phrases "or tending to be formed" and "a fiber mesh" have been deleted from claim 26. The phrases "extending between the top and bottom sides of the paper web" and "by passing the paper web through a plurality of top-felted single-tier normal dryer groups, each of said plurality of normal dryer groups including a single tier of dryer cylinders, a plurality of guide rolls disposed below and between said dryer cylinders, and a single wire transporting said web over the dryer cylinders and beneath the guide rolls so that only the bottom side of said web engages said dryer cylinders" have been added to claim 26. By this amendment, claim 26 now incorporates all of the limitations of claim 27 (now canceled). Applicant points out that the recitation "top felted single tier" has been added to more clearly point out to a person of ordinary skill what is meant by the term "normal dryer groups." Applicant submits that the "normal dryer groups" illustrated in Fig. 1 and described in col. 5 lines 4-6 of the original specification is what a person skilled in the art also refers to as "top felted single tier" dryer groups. Also, claim 26 has been amended to recite "the bottom side of said web" instead of "one side of said web" so as to more clearly describe how "top felted single tier" dryer groups

engage the paper web.

Claim 28 has been amended to depend from claim 26 rather than claim 27 (now canceled).

The term "stressed" and the phrase "or likely to be formed" have been deleted from claim 31.

The phrases: "said fiber mesh of" and "or likely to be formed" have been deleted from claim 32.

Claim 33 has been amended to depend from claim 26 rather than claim 27 (now canceled).

The phrase "or tending to be formed" has been deleted from claim 34. The phrase "said means including a plurality of top-felted single-tier normal dryer groups, each of said plurality of normal dryer groups including a single tier of dryer cylinders, a plurality of guide rolls disposed below and between said dryer cylinders, and a single wire transporting said web over the dryer cylinders and beneath the guide rolls so that only the bottom side of said web engages said dryer cylinders" has been added to claim 34. By this amendment, claim 34 now incorporates all of the limitations of claim 35 (now canceled).

Claim 38 has been amended to depend from claim 34 rather than claim 35 (now canceled).

The phrases: "said fiber mesh of" and "or likely to be formed" have been deleted from claim 39.

Accordingly, Applicant respectfully submits the rejection of claims 1-41 under 35 U.S.C. §112, second paragraph, have been overcome and should thus be withdrawn.

The Examiner has rejected claims 26-41 under 35 U.S.C. §112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. In support of this rejection, the Examiner asserts that the limitation "asymmetrically" drying a paper web is not described by the applicant's disclosure.

Applicant respectfully submits that the term "asymmetric drying" is expressly and literally disclosed in the Background of the Invention of the present specification. As was stated in paragraph 10(a) of Applicant's Statement of Inoperativeness or Invalidity of Original Patent (which was filed with the present reissue application), col. 2, lines 62 through 66 of the present specification discloses that "drying groups with single-wire draw ... do not dry the paper symmetrically, but the drying effect is applied more extensively to the face of the paper that reaches direct contact with the heated drying cylinders." The specification further states that "Owing to this asymmetric drying, recently such drying groups with single-wire draw have been introduced in which certain groups, for example, every second group, are so-called inverted groups, in which the steam-heated drying cylinders are in the lower row and the leading cylinders are in the upper row." Col. 2, line 66 through col. 3 line 4. (emphasis added.)

Thus, the specification not only defines "asymmetric drying," but also teaches a specific type of paper machine drying section which asymmetrically dries a web of paper, namely, a drying section having top felted single tier normal dryer groups.

In any event, it is well settled that "the application need not describe the claimed subject matter in exactly the same terms as used in the claims; it must simply indicate to persons

skilled in the art that as of the earlier date the applicant had invented what is now claimed." Eiselstein v. Frank, 34 U.S.P.Q.2d 1467, 1470 (Fed. Cir. 1995); see, e.g., In re Wertheim, 191 U.S.P.Q. 90, 98 (CCPA 1976) ("The PTO has done nothing more than to argue lack of literal support, which is not enough .... The burden of showing that the claimed invention is not described in the specification rests on the PTO in the first instance, and it is up to the PTO to give reasons why a description not *in ipsius verbis* is insufficient."); Ex Parte Parks, 30 U.S.P.Q.2d 1234, 1236 (Bd. of Pat. App. 1993) ("The examiner contends that the rejected claims lack adequate descriptive support because there is 'no literal basis for the' claim limitation 'in the absence of a catalyst.' Clearly, the observation of a lack of literal support does not, in and of itself, establish a prima facie case for lack of adequate descriptive support under the first paragraph of 35 U.S.C. 112.")

Nonetheless, the term "asymmetric drying" is further supported by the specification because it expressly discloses one type of dryer section which inherently dries a paper web asymmetrically, i.e., a normal dryer group (also known as a top felted single tier dryer group). The Court of Customs and Patent Appeals in In re Smythe, 178 U.S.P.Q. 279, 285 (CCPA 1973), has stated:

By disclosing in a patent application a device that inherently performs a function, operates according to a theory, or has an advantage, a patent applicant necessarily discloses that function, theory or advantage even though he says nothing concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter.

Therefore, for this additional reason, amended claim 26 satisfies the description requirement of 35 U.S.C. §112, first paragraph.

Accordingly, Applicant respectfully requests the rejection of claim 26 under 35

U.S.C. 112, first paragraph as not meeting the description requirement be withdrawn. For the same reasons, the Section 112 rejection of claims 28-34 and 36-41 has also been overcome.

The Examiner has also objected to the specification under 37 C.F.R. 1.71 because the specification "fails to provide an enabling disclosure regarding the method and means for allowing the paper web to be 'asymmetrically' dried."

Applicant submits that the original specification is enabling within the meaning of 35 U.S.C. §112 and 37 C.F.R. §1.71 regarding the method and means for allowing the paper web to be asymmetrically dried. Indeed, a person of ordinary skill in the art need not engage in any experiment at all to practice the claim step of asymmetrically drying a paper web since the specification has already expressly disclosed that normal dryer groups (i.e., top felted single tier dryer groups) will inherently dry a paper web asymmetrically, as was discussed above.

Accordingly, Applicant submits that the objection under 37 C.F.R. §1.71 has been overcome. Withdrawal of this objection is respectfully requested.

The Examiner has rejected claims 26, 28, 30, 31, 33, 34, 37, 38, 40, and 41 under 35 U.S.C. §102(b) as anticipated by Wywialowski et al. (WO 87/04740). Wywialowski et al. discloses a control valve 22 for controlling the flow of steam from a steam header 18 into a steam box 12 of a web drying machine. Wywialowski et al. further discloses that a web of paper is produced by (1) first supplying, under pressure, a jet of pulp onto a moving screen in the forming section of the papermaking machine, and then (2) removing water from the pulp by drainage through the screen and by direct pressure as the web is fed through the nips formed by adjacent press rolls in the press section of the papermaking machine. According to Wywialowski et al., since the press rolls do not apply uniform pressure across the width of the

paper web, the web of paper entering the drying section will vary in moisture content along the width, or cross-machine direction, of the moving web. Wywialowski et al. teaches that such variation in moisture content in the cross-machine direction of the paper web can be compensated by the application of steam from a steam box disposed adjacent a guide roll, e.g. a suction roll, for guiding the moving paper web from one dryer cylinder to another cylinder.

Wywialowski et al., however, does not disclose or suggest the step of asymmetrically drying a paper web in its thickness direction by passing the paper web through a plurality of top-felted single-tier normal dryer groups, and then applying moisture to the asymmetrically dried paper web to control curl, as recited in amended claim 26. Wywialowski et al. does not disclose any method or method step for asymmetrically drying a paper web in its thickness direction.

A person of ordinary skill motivated by Wywialowski et al. will apply moisture to a paper web seeking to eliminate moisture variation in the cross machine direction. There is nothing to suggest any means for controlling curl by controlling the moisture gradient in the thickness direction.

Therefore, Applicant respectfully submits that the rejection of amended claim 26 under 35 U.S.C. §102(b) has been overcome. The rejection should thus be withdrawn.

For the same aforementioned reasons, all claims depending from amended claim 26, and apparatus claims 34, 37, 38, 40 and 41 are also patentably distinguishable over the Wywialowski reference.

Claims 26-31, 33-38 and 40-41 stand rejected under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 5,175,945 to Skaugen et al. in view of Wywialowski et al.

Skaugen et al. discloses a dryer section of a paper making machine wherein the top and bottom sides of the paper are alternately dried to control curling of the paper web as the paper web passes therethrough. As shown in Figure 1, the dryer section includes a plurality of alternating top felted single tier dryer groups 16, 118, 122, and inverted (or bottom felted) single tier dryer groups 22, 120. So arranged, the paper web 12 passes through the top felted dryer groups where the bottom of the web is dried more than the top of the web and through the bottom felted dryer groups where the top of the web is dried more than the bottom of the web in an effort to eliminate asymmetry of drying in the thickness direction of the web. There is no suggestion of applying moisture to eliminate the asymmetry.

Thus, Skaugen et al. teaches a different method of curl control by alternately drying opposite sides of a paper web so as to produce a symmetrically dried paper web, a method which requires inverted dryer groups which have undesirable operating features such as poor broke handling. The present invention, on the other hand, produces curl-free paper by first passing the paper web through a plurality of top felted single tier dryer groups and then applying sufficient moisture to the asymmetrically dried paper to control curl, as recited in amended claim 26, without the need for inverted dryer groups.

The present method has distinct advantages over the method of Skaugen et al. such as, for example, the reduction or elimination of bottom felted or inverted dryer groups which present broke removal problems, namely the fouling of the inverted dryer groups should the web break in such a dryer group. Without the inverted dryer groups, the papermaking machine designers can increase the speed of the machine to thus lower the cost of paper production.



Both Skaugen et al. and Wywialowski et al. are silent as to the application of moisture to control curling of a paper web which has been asymmetrically dried in the thickness direction by a plurality of top felted single tier dryer groups. Neither of these references provides any motivation to an ordinary artisan to apply moisture after the paper web has been asymmetrically dried to reduce the asymmetry of moisture content in the thickness direction and thus control curling of the paper.

Thus, even if Skaugen et al. and Wywialowski et al. are properly combinable, which Applicant denies, these references will only teach an alternating single tier dryer section (as shown in Skaugen et al.) having a steam box (as disclosed in Wywialowski et al.) for controlling moisture content in the cross-machine direction of a paper web dried symmetrically in the thickness direction. None of the key features of Applicant's invention would be present in such a combination as proposed by the Examiner.

Accordingly, Applicant respectfully submits that the rejection of amended claim 26 under 35 U.S.C. 103(a) has been overcome. It is requested that the rejection be withdrawn.

For the same aforementioned reasons, the rejection of dependent claims 28-31, 33, and apparatus claims 34, 36-38 and 40-41 has also been overcome.

Dependent claims 32 and 39 stand rejected under 35 U.S.C. §103(a) as unpatentable over Skaugen et al. in view of Wywialowski et al. and further in view of Chuse (U.S. Patent No. 2,091,805). Chuse discloses a method of drying a paper web in a paper machine by first overdrying a paper web and then reintroducing a controlled amount of moisture to the overdried paper web through moist air, prior to calendaring, so that the paper web attains a desired surface finish.

Applicant submits that this rejection has also been overcome for the same reasons that Skaugen et al. and Wywialowski et al. fail to disclose or suggest the limitations of added independent claims 26 and 34, as amended herein. Withdrawal of this rejection is respectfully requested.

In view of the discussion and arguments set forth above, it is submitted that all claims currently pending in the above-identified application are now in condition for allowance, the earliest possible notification of which is earnestly solicited. If in the Examiner's opinion prosecution of the present application would be advanced by a personal interview, the Examiner is invited to contact the undersigned at the telephone number listed below.

Any additional fees or charges required at this time in connection with the application may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,

COHEN, PONTANI, LIEBERMAN & PAVANE

By Chi K. Eng  
Chi K. Eng  
Reg. No. 38,870  
551 Fifth Avenue, Suite 1210  
New York, New York 10176  
(212) 687-2770

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